IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: BECKER, R.C. et al.

Serial No.: 09/560,518

Filed: 04/28/2000

For: METHOD FOR DEPOSITING BORON-RICH COATINGS

Examiner: PADGETT, MARIANNE

Art Unit: 1762

Att'y. Docket No.: Refrac-3

I hereby certify that this document and all documents enclosed herewith are being sent to the Commissioner of Patents, Washington, DC 20231, postage prepaid via Express Mail, Express Mail Cert #ER222102174US, on 19 November 2003, name: D.N. Halgren, signed:

Hon Commissioner for Patents
Washington, DC 20231

AMENDMENT

Dear Examiner Padgett:

In response to the Examiner's letter dated 05/20/2003 in regard to the above-identified pending U.S. Patent Application, Applicant respectfully traverses Examiner's rejection under 35 USC 102 and 35 USC 103 without at this time addressing the rejections of the Application under 35 USC 112. The reasons for such traverse is recited on the attached single page. Such rejection under 35 USC 112 however, will be addressed upon receipt of the next Office Action.

Respectfully submitted

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November 18, 2003

Regarding U.S. Patent Application 09/560,518

The inventor would like to thank the examiner for pointing out difficulties with the above-mentioned application. A number of points in question implicitly referred back to the inventor's previous patent on the subject, U.S.# 5,861,630, and were not made clearly enough for proper exposition. It is believed that by demonstrating how the current application follows immediately, and builds upon the issued patent, the close linkage between the two documents will resolve much of this confusion.

The major teaching of 5,861,630 is that certain rare-earth metals duly noted in the patent, distinguish themselves from the rest of the rare-earth metals, by combining with boron in a manner that changes the fundamental properties in a beneficial manner. For the sake of brevity, YB_66 is used as a representative molecule for the family, noting that 66 also represents ratios from MB_20 to MB_xxx. Yttrium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, lutetium, and ytterbium, are capable of forming compounds with a much greater ratio of boron to metal than the rest of the lanthanides. In addition to this, these compounds assemble in super-icosahedral structures of boron clusters, which can be made to *preferentially dissociate as clusters and nano-structures of pure boron molecules, analogous to carbon fullerenes and nanotubes*. These molecules have radically different properties from monatomic B, including but not limited to electrical conductivity, self-assembly, and the ability to form novel boron-cluster-based compounds. It is the change from the semiconducting state to the conducting state that is fundamental issue at hand in the case of Kataoka. Kataoka teaches in example 5 [0042], p. 23, that sputtering yields a covalent film of YB_66, wherein Becker teaches that the film is primarily composed of boron cluster ions in claims 13 and following.

This is not intended to be a complete defense against the examiner's objections, but it is hoped that this key point will allow for a more complete dialogue in the other issues.

Sincerely,

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